Index of Authors

Abberton, M. T. and Marshall, A. H. Progress in breeding perennial clovers for temperate agriculture, 117

Abdellaoui, Z. *see* Annicchiarico, P.

Ahmed, N., Haldar, S., Pakhira, M. C. and Ghosh, T. K. Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid, 427

Aires, A. *see* Font, R.

Ali, H. A. M., Mayes, R. W., Hector, B. L., Verma, A. K. and Ørskov, E. R. The possible use of n-alkanes, long-chain fatty alcohols and long-chain fatty acids as markers in studies of the botanical composition of the diet of free-ranging herbivores, 85

Annicchiarico, P., Abdellaoui, Z., Kelkouli, M. and Zerargui, H. Grain yield, straw yield and economic value of tall and semi-dwarf durum wheat cultivars in Algeria, 57

Aruna, C. *see* Audilakshmi, S.

Assis, A. G. *see* Behera, U. K.

Atta, M. and El Khidir, O. A. The effect of age and diet on the reproductive performance of Sudan Nilotic ewes, 421

Audilakshmi, S. and Aruna, C. Genetic analysis of physical grain quality characters in sorghum, 267

Backhouse, D. *see* Lewis, P. D.

Bakken, A. K. *see* Fystro, G.

Behera, U. K., Kebreab, E., Dijkstra, J., Assis, A. G. and France, J. Simulation of milk production by dairy cows fed sugarcane top-based diets with locally available supplements under Indian conditions, 217

Bennett, R., Ismael, Y. and Morse, S. Explaining contradictory evidence regarding impacts of genetically modified crops in developing countries. Varietal performance of transgenic cotton in India, 35

Bennett, S. J. *see* Dimmock, J. P. R. E.

Boyd, L. A. Can Robigus defeat an old enemy? – Yellow rust of wheat, 233

Buttery, P. J. *see* Max, R. A.

Carlier, L. *see* Van Waes, C.

Chaiyabutr, N., Thammacharoen, S., Komolvanich, S. and Chanpongsan, S. Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows, 311

Chanpongsan, S. *see* Chaiyabutr, N.

Clark, L. J., Gowing, D. J. G., Lark, R. M., Leeds-Harrison, P. B., Miller, A. J., Wells, D. M., Whalley, W. R. and Whitmore, A. P. Sensing the physical and nutritional status of the root environment in the field: a review of progress and opportunities, 347

Cocks, P. S. *see* Zeng, L. W.

Coste, F., Raveneau, M. P. and Crozat, Y. Spectrophotometrical pod colour measurement: a non-destructive method for monitoring seed drying, 183

Craigon, J. *see* Max, R. A.

Crozat, Y. *see* Coste, F.

Cullis, B. R. *see* Smith, A. B.

Dawson, J. M. *see* Max, R. A.

De Costa, W. A. J. M. and Surenthiran, P. Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka, 395

De Haro-Bailón, *see* Del Río-Celestino, M.

De Haro-Bailón, A. *see* Font, R.

Del Río-Celestino, M. *see* Font, R.

Del Río-Celestino, M., Font, R., Fernández-Martínez, J. M. and De Haro-Bailón, A. Genetic control of intermediate erucic acid content in the seed oil of the mutant Ethiopian mustard line L-935, 75

Dewhurst, R. J. Targets for milk fat research: nutrient, nuisance or nutraceutical, 359

Diaz, C. *see* Melucci, L. M.

Dijkstra, J. *see* Behera, U. K.

Dimmock, J. P. R. E., Bennett, S. J., Wright, D., Edwards-Jones, G. and Harris, I. M. Agronomic evaluation and performance of flax varieties for industrial fibre production, 299

Edmondson, R. N. Past developments and future opportunities in the design and analysis of crop experiments, 27

Edwards-Jones, G. *see* Dimmock, J. P. R. E.

El Khidir, O. A. *see* Atta, M.

Evans, L. T. The changing context for agricultural science, 7

Faverin, C., Mezzadra, C. A., Fernández, H. M. and Melucci, L. M. Characterization of growth traits of Greenland and Silver coypus under captivity conditions, 199

Fernández, H. M. *see* Faverin, C.

Fernández-Martínez, J. M. *see* Del Río-Celestino, M

Font, R. *see* Del Río-Celestino, M

Font, R., Del Río-Celestino, M., Rosa, E., Aires, A. and De Haro-Bailón, A. Glucosinolate assessment in *Brassica oleracea* leaves by near-infrared spectroscopy, 65

Ford, K. E. *see* Gooding, M. J.

France, J. *see* Behera, U. K.

Frankow-Lindberg, B. E. *see* Gómez, O. J.

Fystro, G. and Bakken, A. K. Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial, 407

Ghosh, T. K. *see* Ahmed, N.
Gómez, O. J. and Frankow-Lindberg, B. E. Yield formation in Nicaraguan landraces of common bean compared to bred cultivars, 369
Gooding, M. J., Gregory, P. J., Ford, K. E. and Pepler, S. Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat, 503
Gous, R. M. *see* Lewis, P. D.
Gowing, D. J. G. *see* Clark, L. J.
Gregory, P. J. *see* Gooding, M. J.

Haldar, S. *see* Ahmed, N.
Hamilton, R. S. *see* Wilman, D.
Harris, I. M. *see* Dimmock, J. P. R. E.
Hector, B. L. *see* Ali, H. A. M.
Herpin, P. *see* Le Dividich, J.
Holst, N. Recursive density equivalents: an improved method for forecasting yield loss caused by mixed weed populations, 293
Hoogenboom, G. *see* Tojo Soler, C. M.
Humphreys, M. Genetic improvement of forage crops – past, present and future, 441

Ireland, C. R. *see* Jiang, W. Z.
Ismael, Y. *see* Bennett, R.

Jadamus, A., Vahjen, W. and Simon, O. Studies on the mode of action of probiotics: effects of the spore-specific dipicolinic acid on selected intestinal bacteria, 529
Jiang, W. Z. and Ireland, C. R. Characterization of manganese use efficiency in UK wheat cultivars grown in a solution culture system and in the field, 151

Kailis, S. G. *see* Zeng, L. W.
Kassuku, A. A. *see* Max, R. A.
Kebreab, E. *see* Behera, U. K.
Kelkouli, M. *see* Annicchiarico, P.
Kimambo, A. E. *see* Max, R. A.
Komolvanich, S. *see* Chaiyabutr, N.
Koutita, O., Tertivanidis, K., Koutsos, T. V., Koutsika-Sotiriou, M. and Skaracis, G. N. Genetic diversity in four cabbage populations based on random amplified polymorphic DNA markers, 377
Koutsika-Sotiriou, M. *see* Koutita, O.
Koutsos, T. V. *see* Koutita, O.
Krishnan, P. and Surya Rao, A. V. Effects of genotype and environment on seed yield and quality of rice, 283
Kuo, J. *see* Zeng, L. W.

Lark, R. M. *see* Clark, L. J.
Le Dividich, J., Rooke, J. A. and Herpin, P. Nutritional and immunological importance of colostrum for the new-born pig, 469
Leeds-Harrison, P. B. *see* Clark, L. J.
Lewis, P. D., Backhouse, D. and Gous, R. M. Effect of constant photoperiods on the laying performance of broiler breeders allowed conventional or accelerated growth, 97
Lootens, P. *see* Van Waes, C.
Lupton, F. Advances in work on breeding wheat with improved grain quality in the twentieth century, 113

Marshall, A. H. *see* Abberton, M. T.
Max, R. A., Wakelin, D., Dawson, J. M., Kimambo, A. E., Kassuku, A. A., Mtenga, L. A., Craigon, J. and Buttery, P. J. Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections, 519
Mayes, R. W. *see* Ali, H. A. M.
McMaster, G. S. Phytomers, phyllochrons, phenology and temperate cereal development, 137
Melucci, L. M. *see* Faverin, C.
Melucci, L. M., Diaz, C. and Mezzadra, C. A. Genetic variability of a Criollo cattle population under conservation, 209
Mestdagh, I. *see* Van Waes, C.
Mezzadra, C. A. *see* Faverin, C.
Mezzadra, C. A. *see* Melucci, L. M.
Miller, A. J. *see* Clark, L. J.
Mohapatra, N. K. *see* Mukherjee, A. K.
Morse, S. *see* Bennett, R.
Mtenga, L. A. *see* Max, R. A.
Mukherjee, A. K., Mohapatra, N. K., Suriya Rao, A. V. and Nayak, P. Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice, 385

Nayak, P. *see* Mukherjee, A. K.

Oettler, G. The fortune of a botanical curiosity – Triticale: past, present and future, 329
Olmos, F. *see* Wilman, D.
Ørskov, E. R. *see* Ali, H. A. M.

Pakhira, M. C. *see* Ahmed, N.
Pepler, S. *see* Gooding, M. J.
Phillips, S. L. and Wolfe, M. S. Evolutionary plant breeding for low input systems, 245

Rahman, H. U. Genetic analysis of stomatal conductance in upland cotton (*Gossypium hirsutum* L.) under contrasting temperature regimes, 161
Raveneau, M. P. *see* Coste, F.
Rooke, J. A. *see* Le Dividich, J.
Rosa, E. *see* Font, R.
Russell, P. E. A century of fungicide evolution, 11

Sakanoue, S. Demography of red clover seeds in mixed-sown meadows, 193
Sentelhas, P. C. *see* Tojo Soler, C. M.
Simon, O. *see* Jadamus, A.
Skaracis, G. N. *see* Koutita, O.
Slee, R. W. From countrysides of production to countrysides of consumption, 255
Smith, A. B., Cullis, B. R. and Thompson, R. The analysis of crop cultivar breeding and evaluation trials: an overview of current mixed model approaches, 449
Sparagano, O. A. E. Impact of ticks and tick-borne diseases on agriculture and human populations in Europe, 463
Surenthran, P. *see* De Costa, W. A. J. M.
Suriya Rao, A. V. *see* Mukherjee, A. K.
Surya Rao, A. V. *see* Krishnan, P.

Tamoutsidis, E. *see* Tsialtas, J. T.
Tertivanidis, K. *see* Koutita, O.
Thammacharoen, S. *see* Chaiyabutr, N.

Thompson, R. *see* Smith, A. B.
Tojo Soler, C. M., Sentelhas, P. C. and Hoogenboom, G. Thermal time for phenological development of four maize hybrids grown off-season in a subtropical environment, 169
Tokatlidis, I. S. *see* Tsialtas, J. T.
Tsialtas, J. T., Tokatlidis, I. S., Tamoutsidis, E. and Xynias, I. Relationship of grain yield with carbon isotope discrimination and ash content in lines derived from a bread wheat cultivar, 275

Vahjen, W. *see* Jadamus, A.
Van Waes, C., Mestdagh, I., Lootens, P. and Carlier, L. Possibilities of near-infrared reflectance spectroscopy for the prediction of organic carbon concentrations in grassland soils, 487
Verma, A. K. *see* Ali, H. A. M.

Wakelin, D. *see* Max, R. A.
Wells, D. M. *see* Clark, L. J.
Whalley, W. R. *see* Clark, L. J.
Whitmore, A. P. *see* Clark, L. J.
Wilman, D., Olmos, F. and Hamilton, R. S. The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay, 493
Wolfe, M. S. *see* Phillips, S. L.
Wright, D. *see* Dimmock, J. P. R. E.

Xynias, I. *see* Tsialtas, J. T.

Zeng, L. W., Cocks, P. S., Kailis, S. G. and Kuo, J. The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species, 43
Zerargui, H. *see* Annicchiarico, P.

Index of Subjects

Age
The effect of age and diet on the reproductive performance of Sudan Nilotic ewes (Atta and El Khidir), 421
Agricultural science
The changing context for agricultural science (Evans), 7
Agronomic
Agronomic evaluation and performance of flax varieties for industrial fibre production (Dimmock *et al.*), 299
Ascorbic acid
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Bacteria
Studies on the mode of action of probiotics: effects of the spore-specific dipicolinic acid on selected intestinal bacteria (Jadamus *et al.*), 529
Brassica oleracea
Glucosinolate assessment in *Brassica oleracea* leaves by near-infrared spectroscopy (Font *et al.*), 65
Genetic diversity in four cabbage populations based on random amplified polymorphic DNA markers (Koutita *et al.*), 377
Breeding
Progress in breeding perennial clovers for temperate agriculture (Abberton and Marshall), 117
Breeding wheat
Advances in work on breeding wheat with improved grain quality in the Twentieth Century (Lupton), 113
Broiler breeders
Effect of constant photoperiods on the laying performance of broiler breeders allowed conventional or accelerated growth (Lewis *et al.*), 97
Cabbage
Genetic diversity in four cabbage populations based on random amplified polymorphic DNA markers (Koutita *et al.*), 377
Carbon
Relationship of grain yield with carbon isotope discrimination and ash content in lines derived from a bread wheat cultivar (Tsialtas *et al.*), 275
Carcass
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Cattle
Genetic variability of a Criollo cattle population under conservation (Melucci *et al.*), 209
Cereal development
Phytomers, phyllochrons, phenology and temperate cereal development (McMaster), 137
Chickens
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Chromium
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Clover
Demography of red clover seeds in mixed-sown meadows (Sakanoue), 193
Clovers
Progress in breeding perennial clovers for temperate agriculture (Abberton and Marshall), 117
Colostrum
Nutritional and immunological importance of colostrum for the new-born pig (Le Dividich *et al.*), 469
Common bean
Yield formation in Nicaraguan landraces of common bean compared to bred cultivars (Gómez and Frankow-Lindberg), 369
Consumption
From countrysides of production to countrysides of consumption (Slee), 255
Cotton
Genetic analysis of stomatal conductance in upland cotton (*Gossypium hirsutum* L.) under contrasting temperature regimes (Rahman), 161
Explaining contradictory evidence regarding impacts of genetically modified crops in developing countries. Varietal performance of transgenic cotton in India (Bennet *et al.*), 35
Cows
Simulation of milk production by dairy cows fed sugarcane top-based diets with locally available supplements under Indian conditions (Behera *et al.*), 217
Coypus
Characterization of growth traits of Greenland and Silver coypus under captivity conditions (Faverin *et al.*), 199
Crop experiments
Past developments and future opportunities in the design and analysis of crop experiments (Edmondson), 27

Cultivar
The analysis of crop cultivar breeding and evaluation trials: an overview of current mixed model approaches (Smith *et al.*), 449
Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat (Gooding *et al.*), 503
Demography
Demography of red clover seeds in mixed-sown meadows (Sakanoue), 193
Diet
The effect of age and diet on the reproductive performance of Sudan Nilotic ewes (Atta and El Khidir), 421
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Dipicolinic acid
Studies on the mode of action of probiotics: effects of the spore-specific dipicolinic acid on selected intestinal bacteria (Jadamus *et al.*), 529
Disease resistance
Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice (Mukherjee *et al.*), 385
Diseases
Impact of ticks and tick-borne diseases on agriculture and human populations in Europe (Sparagano), 463
Durum wheat
Grain yield, straw yield and economic value of tall and semi-dwarf durum wheat cultivars in Algeria (Annicchiarico *et al.*), 57
Economic value
Grain yield, straw yield and economic value of tall and semi-dwarf durum wheat cultivars in Algeria (Annicchiarico *et al.*), 57
Efficiency
Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat (Gooding *et al.*), 503
Environment
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Erosion control
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395
Erucic acid
Genetic control of intermediate erucic acid content in the seed oil of the mutant Ethiopian mustard line L-935 (Del Rio-Celestino *et al.*), 75
Evaluation trials
The analysis of crop cultivar breeding and evaluation trials: an overview of current mixed model approaches (Smith *et al.*), 449
Ewes
The effect of age and diet on the reproductive performance of Sudan Nilotic ewes (Atta and El Khidir), 421
Faecal egg counts
Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections (Max *et al.*), 519
Fatty acids
The possible use of n-alkanes, long-chain fatty alcohols and long-chain fatty acids as markers in studies of the botanical composition of the diet of free-ranging herbivores (Ali *et al.*), 85
Fatty alcohols
The possible use of n-alkanes, long-chain fatty alcohols and long-chain fatty acids as markers in studies of the botanical composition of the diet of free-ranging herbivores (Ali *et al.*), 85
Flax
Agronomic evaluation and performance of flax varieties for industrial fibre production (Dimmock *et al.*), 299
Forage crops
Genetic improvement of forage crops – past, present and future (Humphreys), 441
Fractures
The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species (Zeng *et al.*), 43
Fungicide
A century of fungicide evolution (Russell), 11
Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat (Gooding *et al.*), 503
Genetic analysis
Genetic analysis of stomatal conductance in upland cotton (*Gossypium hirsutum* L.) under contrasting temperature regimes (Rahman), 161
Genetic analysis of physical grain quality characters in sorghum (Audilakshmi and Aruna), 267
Genetic advance
Yield formation in Nicaraguan landraces of common bean compared to bred cultivars (Gómez and Frankow-Lindberg), 369
Genetic control
Genetic control of intermediate erucic acid content in the seed oil of the mutant Ethiopian mustard line L-935 (Del Rio-Celestino *et al.*), 75
Genetic diversity
Genetic diversity in four cabbage populations based on random amplified polymorphic DNA markers (Koutita *et al.*), 377
Genetic improvement
Genetic improvement of forage crops – past, present and future (Humphreys), 441
Genetic variability
Genetic variability of a Criollo cattle population under conservation (Melucci *et al.*), 209
Genetically modified crops
Explaining contradictory evidence regarding impacts of genetically modified crops in developing countries. Varietal performance of transgenic cotton in India (Bennet *et al.*), 35
Genotype
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Glucosinolate assessment
Glucosinolate assessment in *Brassica oleracea* leaves by near-infrared spectroscopy (Font *et al.*), 65
***Gossypium hirsutum* L.**
Genetic analysis of stomatal conductance in upland cotton (*Gossypium hirsutum* L.) under contrasting temperature regimes (Rahman), 161

Grain quality
Advances in work on breeding wheat with improved grain quality in the twentieth century (Lupton), 113
Genetic analysis of physical grain quality characters in sorghum (Audilakshmi and Aruna), 267
Grain yield
Grain yield, straw yield and economic value of tall and semi-dwarf durum wheat cultivars in Algeria (Annicchiarico *et al.*), 57
Relationship of grain yield with carbon isotope discrimination and ash content in lines derived from a bread wheat cultivar (Tsialtas *et al.*), 275
Grassland soils
Possibilities of near-infrared reflectance spectroscopy for the prediction of organic carbon concentrations in grassland soils (Van Waes *et al.*), 487
Grazed swards
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
Growth
Effect of constant photoperiods on the laying performance of broiler breeders allowed conventionai or accelerated growth (Lewis *et al.*), 97
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Growth factor
Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows (Chaiyabutr *et al.*), 311
Growth traits
Characterization of growth traits of Greenland and Silver coypus under captivity conditions (Faverin *et al.*), 199
Hardseededness
The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species (Zeng *et al.*), 43
Herbage quality
Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial (Fystro and Bakken), 407
Herbivores
The possible use of n-alkanes, long-chain fatty alcohols and long-chain fatty acids as markers in studies of the botanical composition of the diet of free-ranging herbivores (Ali *et al.*), 85
Human
Impact of ticks and tick-borne diseases on agriculture and human populations in Europe (Sparagano), 463
Immunological
Nutritional and immunological importance of colostrum for the new-born pig (Le Dividich *et al.*), 469
Industrial fibre
Agronomic evaluation and performance of flax varieties for industrial fibre production (Dimmock *et al.*), 299
Insulin
Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows (Chaiyabutr *et al.*), 311
Intercropping systems
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395
Landraces
Yield formation in Nicaraguan landraces of common bean compared to bred cultivars (Gómez and Frankow-Lindberg), 369
Laying performance
Effect of constant photoperiods on the laying performance of broiler breeders allowed conventional or accelerated growth (Lewis *et al.*), 97
Legume
The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species (Zeng *et al.*), 43
Lime
Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial (Fystro and Bakken), 407
Lipids
The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species (Zeng *et al.*), 43
Low input
Evolutionary plant breeding for low input systems (Phillips and Wolfe), 245
Maize
Thermal time for phenological development of four maize hybrids grown off-season in a subtropical environment (Tojo Soler *et al.*), 169
Manganese
Characterization of manganese use efficiency in UK wheat cultivars grown in a solution culture system and in the field (Jiang and Ireland), 151
Milk fat
Targets for milk fat research: nutrient, nuisance or nutraceutical (Dewhurst), 359
Milk production
Simulation of milk production by dairy cows fed sugarcane top-based diets with locally available supplements under Indian conditions (Behera *et al.*), 217
Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows (Chaiyabutr *et al.*), 311
Mixed model
The analysis of crop cultivar breeding and evaluation trials: an overview of current mixed model approaches (Smith *et al.*), 449
Mustard
Genetic control of intermediate erucic acid content in the seed oil of the mutant Ethiopian mustard line L-935 (Del Río-Celestino *et al.*), 75
N-alkanes
The possible use of n-alkanes, long-chain fatty alcohols and long-chain fatty acids as markers in studies of the botanical composition of the diet of free-ranging herbivores (Ali *et al.*), 85

Near-infrared spectroscopy
Glucosinolate assessment in *Brassica oleracea* leaves by near-infrared spectroscopy (Font *et al.*), 65
Possibilities of near-infrared reflectance spectroscopy for the prediction of organic carbon concentrations in grassland soils (Van Waes *et al.*), 487
Nematode
Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections (Max *et al.*), 519
Nitrogen
Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice (Mukherjee *et al.*), 385
Nitrogen uptake
Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat (Gooding *et al.*), 503
Nutraceutical
Targets for milk fat research: nutrient, nuisance or nutraceutical (Dewhurst), 359
Nutrient
Targets for milk fat research: nutrient, nuisance or nutraceutical (Dewhurst), 359
Growth performances, nutrient utilization and carcass traits in broiler chickens fed with a normal and a low energy diet supplemented with inorganic chromium (as chromium chloride hexahydrate) and a combination of inorganic chromium and ascorbic acid (Ahmed *et al.*), 427
Nutritional
Nutritional and immunological importance of colostrum for the new-born pig (Le Dividich *et al.*), 469
Organic carbon
Possibilities of near-infrared reflectance spectroscopy for the prediction of organic carbon concentrations in grassland soils (Van Waes *et al.*), 487
Oryza sativa
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice (Mukherjee *et al.*), 385
Perennial crops
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395
Persistence
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
pH
Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial (Fystro and Bakken), 407
Phaseolus vulgaris
Yield formation in Nicaraguan landraces of common bean compared to bred cultivars (Gómez and Frankow-Lindberg), 369
Phenological development
Thermal time for phenological development of four maize hybrids grown off-season in a subtropical environment (Tojo Soler *et al.*), 169
Phenology
Phytomers, phyllochrons, phenology and temperate cereal development (McMaster), 137
Photoperiods
Effect of constant photoperiods on the laying performance of broiler breeders allowed conventional or accelerated growth (Lewis *et al.*), 97
Phyllochrons
Phytomers, phyllochrons, phenology and temperate cereal development (McMaster), 137
Phytomers
Phytomers, phyllochrons, phenology and temperate cereal development (McMaster), 137
Pig
Nutritional and immunological importance of colostrum for the new-born pig (Le Dividich *et al.*), 469
Plant breeding
Evolutionary plant breeding for low input systems (Phillips and Wolfe), 245
Plasma
Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows (Chaiyabutr *et al.*), 311
Pod colour
Spectrophotometrical pod colour measurement: a non-destructive method for monitoring seed drying (Coste *et al.*), 183
Probiotics
Studies on the mode of action of probiotics: effects of the spore-specific dipicolinic acid on selected intestinal bacteria (Jadamus *et al.*), 529
Production
From countrysides of production to countrysides of consumption (Slee), 255
Progress
Progress in breeding perennial clovers for temperate agriculture (Abberton and Marshall), 117
Quality
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Random Amplified Polymorphic DNA markers (RAPD)
Genetic diversity in four cabbage populations based on random amplified polymorphic DNA markers (Koutita *et al.*), 377
Recombinant bovine somatotropin
Effects of long-term administration of recombinant bovine somatotropin on milk production and plasma insulin-like growth factor and insulin in crossbred Holstein cows (Chaiyabutr *et al.*), 311
Recursive density equivalents
Recursive density equivalents: an improved method for forecasting yield loss caused by mixed weed populations (Holst), 293
Reproductive performance
The effect of age and diet on the reproductive performance of Sudan Nilotic ewes (Atta and El Khidir), 421
Resource competition
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395

Rice
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice (Mukherjee *et al.*), 385
Rice blast
Effect of nitrogen fertilization on the expression of slow-blasting resistance in rice (Mukherjee *et al.*), 385
Root environment
Sensing the physical and nutritional status of the root environment in the field: a review of progress and opportunities (Clark *et al.*), 347
Seed coat
The role of fractures and lipids in the seed coat in the loss of hardseededness of six Mediterranean legume species (Zeng *et al.*), 43
Seed drying
Spectrophotometrical pod colour measurement: a non-destructive method for monitoring seed drying (Coste *et al.*), 183
Seed oil
Genetic control of intermediate erucic acid content in the seed oil of the mutant Ethiopian mustard line L-935 (Del Rio-Celestino *et al.*), 75
Seed shedding
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
Seed yield
Effects of genotype and environment on seed yield and quality of rice (Krishnan and Surya Rao), 283
Seedling development
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
Sheep
The effect of age and diet on the reproductive performance of Sudan Nilotic ewes (Atta and El Khidir), 421
Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections (Max *et al.*), 519
Shrub species
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395
Soil reaction
Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial (Fystro and Bakken), 407
Soils
Possibilities of near-infrared reflectance spectroscopy for the prediction of organic carbon concentrations in grassland soils (Van Waes *et al.*), 487
Sorghum
Genetic analysis of physical grain quality characters in sorghum (Audilakshmi and Aruna), 267
Spectrophotometry
Spectrophotometrical pod colour measurement: a non-destructive method for monitoring seed drying (Coste *et al.*), 183
Stomatal conductance
Genetic analysis of stomatal conductance in upland cotton (*Gossypium hirsutum* L.) under contrasting temperature regimes (Rahman), 161
Straw yield
Grain yield, straw yield and economic value of tall and semi-dwarf durum wheat cultivars in Algeria (Annicchiarico *et al.*), 57
Tannin
Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections (Max *et al.*), 519
Tea
Resource competition in contour hedgerow intercropping systems involving different shrub species with mature and young tea on sloping highlands in Sri Lanka (De Costa and Surenthran), 395
Thermal time
Thermal time for phenological development of four maize hybrids grown off-season in a subtropical environment (Tojo Soler *et al.*), 169
Ticks
Impact of ticks and tick-borne diseases on agriculture and human populations in Europe (Sparagano), 463
Transgenic cotton
Explaining contradictory evidence regarding impacts of genetically modified crops in developing countries. Varietal performance of transgenic cotton in India (Bennet *et al.*), 35
Trifolium repens
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
Triticale
The fortune of a botanical curiosity – Triticale: past, present and future (Oettler), 329
Weed
Recursive density equivalents: an improved method for forecasting yield loss caused by mixed weed populations (Holst), 293
Wheat
Advances in work on breeding wheat with improved grain quality in the twentieth century (Lupton), 113
Characterization of manganese use efficiency in UK wheat cultivars grown in a solution culture system and in the field (Jiang and Ireland), 151
Can Robigus defeat an old enemy – Yellow rust of wheat (Boyd), 233
Relationship of grain yield with carbon isotope discrimination and ash content in lines derived from a bread wheat cultivar (Tsialtas *et al.*), 275
Fungicide and cultivar affect post-anthesis patterns of nitrogen uptake, remobilization and utilization efficiency in wheat (Gooding *et al.*), 503
White clover
The potential of seed-shedding and seedling development to contribute to the persistence of white clover (*Trifolium repens*) in grazed swards in Uruguay (Wilman *et al.*), 493
Worm
Effect of quebracho tannin on faecal egg counts and worm burdens of temperate sheep with challenge nematode infections (Max *et al.*), 519

Yellow rust
Can Robigus defeat an old enemy – Yellow rust of wheat (Boyd), 233
Yield formation
Yield formation in Nicaraguan landraces of common bean compared to bred cultivars (Gómez and Frankow-Lindberg), 369
Yield loss
Recursive density equivalents: an improved method for forecasting yield loss caused by mixed weed populations (Holst), 293
Yields
Soil reaction, yields and herbage element content as affected by lime applied on established leys in a multi-site field trial (Fystro and Bakken), 407